

What is claimed is:

1. An antisense compound 8 to 80 nucleobases in length comprising at least 80% sequence complementarity to a nucleic acid molecule encoding beta-site APP-cleaving enzyme 2 (SEQ ID NO: 4), wherein said antisense compound specifically hybridizes to nucleobases 488-1683 of SEQ ID NO:4 and inhibits beta-site APP-cleaving enzyme 2 mRNA levels.
2. The antisense compound of claim 1 wherein the antisense compound inhibits beta-site APP-cleaving enzyme 2 mRNA levels in A549 cells by at least 65%.
3. The antisense compound of claim 1 wherein the antisense compound comprises at least one modified internucleoside linkage.
4. The antisense compound of claim 3 wherein the modified internucleoside linkage is a phosphorothioate linkage.
- 20 5. The antisense compound of claim 1 wherein the antisense compound comprises at least one modified sugar moiety.
6. The antisense compound of claim 5 wherein the modified sugar moiety is a 2'-O-methoxyethyl sugar moiety.
- 25 7. The antisense compound of claim 3 wherein the antisense compound comprises at least one modified nucleobase.
8. The antisense compound of claim 7 wherein the modified nucleobase is a 5-methylcytosine.
- 30 9. The antisense compound of claim 1 wherein the antisense compound is a chimeric oligonucleotide.
10. An antisense compound comprising at least 80%

sequence complementarity to a nucleic acid molecule encoding beta-site APP-cleaving enzyme 2 (SEQ ID NO: 4), wherein said antisense compound specifically hybridizes with at least an 8-nucleobase portion of nucleobases 488-1683 of SEQ ID NO:4
5 and inhibits beta-site APP-cleaving enzyme 2 mRNA levels.

11. A composition comprising the antisense compound of claim 1 and a pharmaceutically acceptable carrier or diluent.

12. The composition of claim 11 further comprising a
10 colloidal dispersion system.

13. A method of inhibiting the expression of beta-site APP-cleaving enzyme 2 in cells or tissues comprising contacting said cells or tissues with the antisense compound of claim 1 so that expression of beta-site APP-cleaving
15 enzyme 2 is inhibited.

14. An antisense compound 8 to 80 nucleobases in length comprising at least 80% sequence complementarity to a nucleic acid molecule encoding beta-site APP-cleaving enzyme 2 (SEQ ID NO: 4), wherein said antisense compound
20 specifically hybridizes to the 5' untranslated region, the start codon region, the stop codon region, or the 3' untranslated region of the nucleic acid molecule encoding beta-site APP-cleaving enzyme 2 and inhibits beta-site APP-cleaving enzyme 2 mRNA levels.

25 15. The antisense compound of claim 14 wherein the compound specifically hybridizes to the 5' untranslated region.

30 16. The antisense compound of claim 14 wherein the antisense compound specifically hybridizes to the start codon region.

17. The antisense compound of claim 14 wherein the antisense compound specifically hybridizes to the stop codon region.

18. The antisense compound of claim 14 wherein the 5 antisense compound specifically hybridizes to the 3' untranslated region.

19. The antisense compound of claim 1 wherein the antisense compound comprises SEQ ID NO: 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 10 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 47, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 59, 60, 61, 62, 66, 67, 68, 69, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87 or 88.

20. The antisense compound of claim 1 wherein the 15 antisense compound comprises SEQ ID NO:18, 29, 34, 41 or 59.

21. An antisense compound 8 to 80 nucleobases in length comprising at least 80% sequence complementarity to a nucleic acid molecule encoding beta-site APP-cleaving enzyme 2 (SEQ ID NO:4), wherein said antisense compound inhibits 20 beta-site APP-cleaving enzyme 2 mRNA levels in A549 cells *in vitro* by at least 65%, wherein said antisense compound does not target nucleobases 1885 to 1909, 1970 to 1994, 1796 to 1820, or 1696 to 1720, using the numbering scheme of the RNA corresponding to the GenBank accession number NM_012105.

25 22. The antisense compound of claim 21 wherein the antisense compound inhibits beta-site APP-cleaving enzyme 2 mRNA levels in A549 cells by at least 65%.

23. The antisense compound of claim 21 wherein said 30 antisense compound has at least 90% sequence complementarity to said nucleic acid molecule.

24. The antisense compound of claim 21 wherein said antisense compound has at least 95% sequence complementarity to said nucleic acid molecule.